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Brazilian Participation on the Resistive Plate Chambers (RPC) upgrade project of the CMS muon system

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The Resistive Plate Chambers (RPC) are used in the barrel and forward region of the CMS muon system. They provide a muon trigger and are used in the muon trajectory reconstruction.

The future increase of the LHC luminosity (HL-LHC) imposes a challenge to the RPC system. In order to cope with the new conditions, an upgrade is planned. In the forward region, two additional RPC stations called RE3/1 and RE4/1, based on improved RPC technology will be installed. The link boards of the present RPC detectors will be upgraded allowing better time resolution and higher rate capabilities.

During the last years, several studies on the performance of new technologies and configurations have been done using Monte-Carlo simulations and testing new detectors in the Gamma Irradiation Facility at CERN. The results indicate that the technology to be used for the extension of the RPC system is HPL double gap RPC.

This talk will present the main activities are developing by Brazilian groups, in the special of the UERJ and UNICAMP, on RPC upgrade project Phase I and our proposal the contribution for the RPC Upgrade Phase II program will be finished with the installation of the chambers during the Yearly Technical Stops at the end of 2022 and 2023.

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